

MARCH 1998

GENERAL PURPOSE CLEANERS

Scrub, squirt, splash, scour. We could be winning the war against filth and grime . . . but at what cost to the environment? Cleaning products are among the most hazardous chemicals you will find in your home or office and are therefore regulated by the Consumer Product Safety Commission. These cleaners are part of our burgeoning hazardous waste stream.

Cleaners are becoming part of our burgeoning hazardous waste stream.

These types of products can threaten human health as well as the natural environment. Of the majority of human poison exposure cases reported to poison control centers, most (~90%) occur in the home. Because the chemicals found in cleaners are not as easily dispersed indoors as outdoors, concentrations of toxic chemicals may be higher in your home or office than outside. A recent 5-year EPA study found the concentrations of 20 toxic compounds to be as much as 200 times higher inside homes and offices than outdoors. General purpose cleaners can be toxic, corrosive, irritating, and flammable. All-purpose cleaners may contain phosphates, volatile organic compounds (VOCs), EDTA, NTA, glycol ethers, phenolic compounds and many others. Many of these ingredients are considered hazardous, are toxic,

cause pollution and poison our environment.

In response to pleas from users and environmental advocates, many manufacturers have created cleaners which are safer for the environment. But beware. There are few concrete definitions or legal requirements for using such popular words as "natural" or "green," and manufacturers are not required to disclose all the ingredients in their products. Many ingredients are considered proprietary. So read labels carefully.

Green Seal surveyed manufacturers of general purpose cleaners and these products are available in the market at

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competitive prices. You should be able to find an environmentally responsible product that does the job without paying more for it.

In this report we identify environmentally responsible general-purpose cleaners. These are cleaners currently available on the market which have a reduced impact upon the environment and upon human health. This report also reviews the information you will need to look for when buying cleaners.

What To Look For In A Greener Cleaner

■ Is it biodegradable?

This means that the product can be broken down by microbial action. Biodegradability usually applies to a cleaner's surfactants, which are the active ingredients that perform the main cleaning function. The rate at which they break down is important. If

ingredients biodegrade slowly or incompletely, they can threaten our environment. For example, even at low concentrations, surfactants can increase the penetration of harmful chemicals into the tissues of plants and animals. A general rule of thumb (although there are exceptions) is that surfactants made from petroleum fatty acids degrade slowly. Those derived from vegetable oil fatty acids break down more quickly. Look particularly for products that are "readily biodegradable," which implies that they break down quickly and harmlessly. And if the product does not say biodegradable anywhere on the label, don't buy it!

Using a concentrated product correctly cuts down on packaging waste and transport ... which could ultimately save you money. Save energy too by using cold water to dilute mixtures.

■ Is it non-toxic?

Use products specifically identified as non-toxic to humans and aquatic life. Non-toxic means that the product is not injurious to humans or aquatic life when used for its normal, intended use and under normal concentrations.

To be labeled as non-toxic to humans, the product must meet Federal requirements.

■ Does it contain EDTA (ethylene diamine tetraacetic acid or ethylene dinitrilotetraacetic acid), NTA (nitrilotriacetic acid), phosphates or derivatives of phosphates?

Phosphates and EDTA (both known as builders) have traditionally been used to soften water and to increase the cleaning power of the surfactants. Phosphates encourage plant growth and algal blooms which can lead to oxygen depletion, eutrophication of water bodies, and ultimately to the death of aquatic life. EDTA and NTA are not readily biodegradable. They are moreover, suspected carcinogens, and can mobilize heavy metals in sewage treatment plant sludge and in stream and lake sediments. Other builders such as sodium carbonate, sodium bicarbonate, sodium citrate and sodium silicate have much milder environmental impacts.

■ Is it concentrated and does it work efficiently when diluted in cold water?

The most common ingredient (up to 90%) of general purpose cleaners is water. When this excess water is shipped, energy and packaging is wasted and more solid waste is created for our landfills.

The **Choose Green Report** is published for Green Seal Environmental Partners. To become an Environmental Partner, or to receive a copy of this report, contact Green Seal at (202) 588-8400 x 21 or lcarr@greenseal.org.

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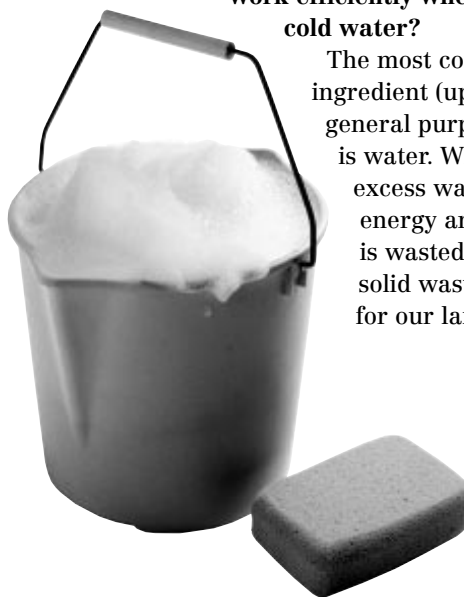
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Printed on Green Seal-certified Mohawk Satin Cool White Recycled paper, 25% postconsumer content

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Using a concentrated product cuts down on packaging waste and fuel costs associated with transport. This can also ultimately save the consumer money. A product is considered concentrated when it contains less than 20% water by weight. The optimum dilution to look for is 1 ounce of cleaner to 1 gallon of water. And remember, use cold water when making dilutions, because this helps to save energy.

■ **Does it contain chlorine bleach?**

Many products use sodium hypochlorite to whiten, disinfect, deodorize and to remove stains. But in wastewater, chlorine-containing bleaching agents can react with other chemicals to form chlorinated organic compounds, which can be toxic and carcinogenic. When buying non-chlorine bleach cleaning products, be sure they are labeled to be effective in cold water. A preferable substitute for chlorine-bleach is sodium percarbonate.

■ **Does it contain high concentrations of Volatile Organic Compounds (VOCs)?**

Solvents are used to assist the cleaning action or to help dissolve other ingredients in the product. VOCs include hundreds of compounds, such as, benzene, toluene, xylene and trichloro-ethane. Cleaning products contribute approximately 8% of total non-vehicular VOC emissions. They enter the air during product use or after being disposed of. Some may also combine with water and enter the wastewater stream. VOCs react with nitrous oxides in the presence of sunlight to produce ground-level ozone and photochemical smog. Smog can cause health problems, especially

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Checklist

WHAT TO LOOK FOR IN A SUPERIOR CLEANER

A superior green cleaner is one that lessens its environmental impacts at every stage of its life cycle, including its packaging.

- ☐ Product should be **BIODEGRADABLE AND NON-TOXIC** to both humans and aquatic life.
- ☐ **EDTA and NTA**—avoid purchasing products with these ingredients. Instead choose builders such as sodium citrate, sodium bicarbonate, sodium carbonate, or sodium silicate
- ☐ **PHOSPHATES**—choose products with a phosphate concentration of 0.5% by weight or less. Those without are the best!
- ☐ Product should be **CONCENTRATED** and able to work in cold water.
- ☐ **AVOID** products containing **CHLORINE BLEACH** or **SODIUM HYPOCHLORITE**.
- ☐ **VOC CONCENTRATIONS**—choose products with a VOC concentration no more than 10% of the weight of the product, when diluted for use as directed.
- ☐ Generally try to avoid ingredients derived from petroleum. Choose **SURFACTANTS** derived from vegetable oil when possible. Avoid those with nonylphenol ethoxylate. Look for d-limonene and pine oil **SOLVENTS**.
- ☐ Favor products with a **NEUTRAL pH**.
- ☐ **PACKAGING** —choose products in recycled containers with recyclable HDPE or PET. Choose those shipped in recycled and recyclable cardboard boxes and other recyclable and refillable containers.

What to Look for in a Greener Cleaner
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for those with respiratory ailments. These solvents when inhaled or absorbed through the skin can have serious health effects on the liver, kidneys, respiratory system, and central nervous system. Some VOCs are also known or suspected carcinogens.

■ **Avoid petroleum-based solvents, glycol ethers, phenolic compounds and surfactants.**

Petroleum-based solvents are made from non-renewable resources, are extremely flammable and are toxic upon inhalation. Glycol ethers (e.g., ethylene glycol, butoxy ethanol) are also commonly used, especially in spray cleaners. These are manufactured through petrochemical processes and many are toxic. Isopropyl alcohol, although not as toxic, is manufactured through petrochemical processes as well and is therefore associated with the release of toxic pollutants during these processes. Phenolic compounds are highly volatile, highly toxic, corrosive, suspected of causing cancer in humans and can be harmful upon inhalation or absorption through the skin or eyes. Sometimes phenol is also used as a germ killer in cleaners.

Petroleum-derived surfactants are associated with more serious environmental impacts than those made from vegetable oils. While many of the commonly used surfactants are relatively non-toxic to humans, they may be based on chemicals that are toxic, such as ethoxylated surfactants based upon ethylene oxide, an animal carcinogen.

Look for pine oil or citrus-based solvents. Pine oil is a coproduct of tree harvesting for paper production and has antimicrobial properties. It is, however, irritating to the skin, eyes and mucous membranes in high

concentrations and is combustible. Another effective solvent is d-limonene, which is created from citrus peels, but it can also be fairly irritating. Sometimes citrus-based solvents will contain petroleum distillates as well, so be careful when choosing these types of products. Both pine oil and d-limonene are agricultural byproducts and are

considered renewable resources.

■ **Favor neutral pH products.**

When buying a cleaning product, you want to be aware of the pH for several reasons. If the product is extremely acidic or alkaline, spilling them on your skin or near your face could cause severe burns. Those less acidic or alkaline can still cause skin, eye

and mucous membrane irritations. A pH of 7.0 is ideal, because this is neutral and is the same pH as clean water. Keep in mind that a pH of 1.0 is most acidic and a pH of 14.0 is most alkaline.

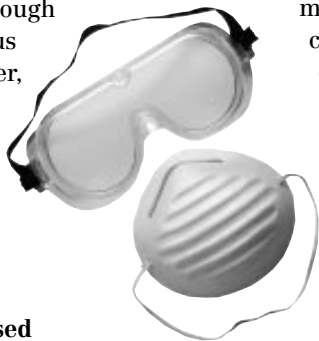
■ **Look for smarter containers/smarter packaging.**

Find products that are packaged as a concentrate and are contained in recyclable/refillable containers

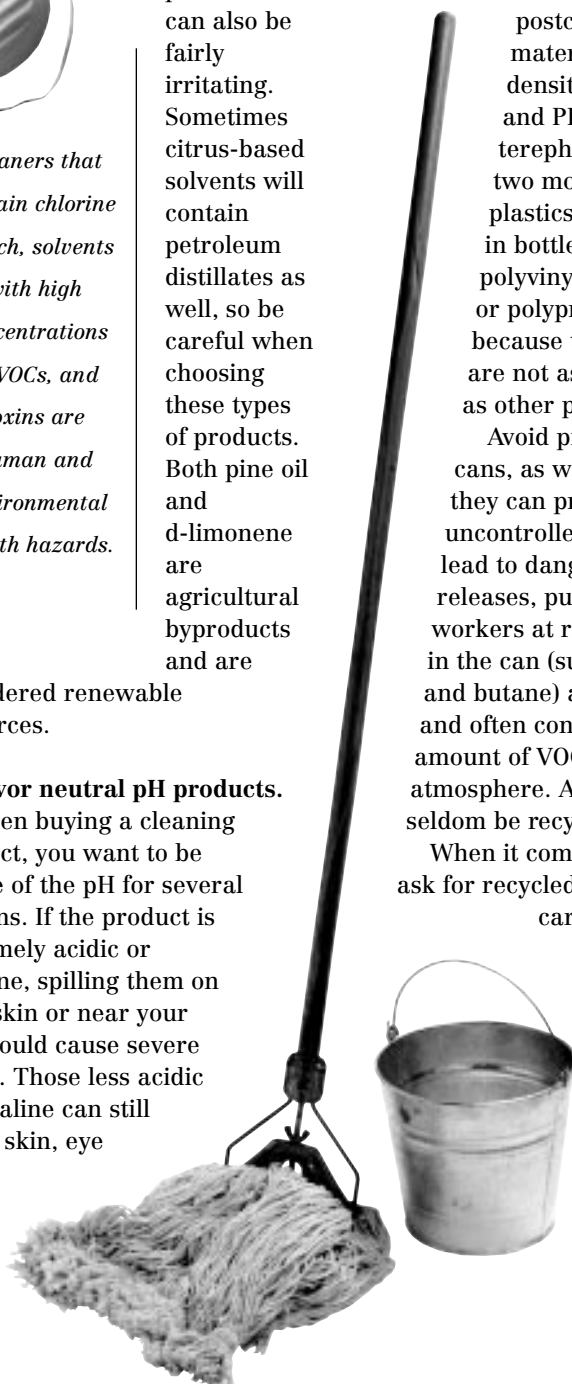
which contain postconsumer materials. HDPE (high density polyethylene) and PET (polyethylene terephthalate) are the two most recycled plastics. Avoid cleaners in bottles made from polyvinyl chloride (PVC) or polypropylene (PP) because these products are not as easily recycled as other packaging.

Avoid pressurized aerosol cans, as well. If punctured, they can produce an uncontrolled spray, and can lead to dangerous chemical releases, putting sanitation workers at risk. The aerosols in the can (such as propane and butane) are flammable and often contribute to the amount of VOCs in our atmosphere. Aerosol cans can seldom be recycled, either.

When it comes to shipping, ask for recycled/recyclable cardboard boxes and refillable and reusable shipping containers.



Cleaners that contain chlorine bleach, solvents with high concentrations of VOCs, and toxins are human and environmental health hazards.



Recommended General Purpose Cleaners — Green Buys

All of the recommended general purpose cleaners listed in this table . . .

- Are labeled as biodegradable.
- Are non-toxic to both humans and aquatic life.
- Do not contain EDTA or NTA.
- Do not contain chlorine bleach or sodium hypochlorite.
- Do not contain phosphates or derivatives of phosphates.
- Have acceptable packaging.
- Do not contain phenolic compounds.
- Do not contain glycol ethers.
- Do not contain petroleum or petrochemical compounds.
- Are concentrated and work optimally in cold water.
- Have an acceptable pH when diluted.
- Have an acceptable VOC levels when diluted.

MANUFACTURER / BRAND	pH	VOC concentration (by weight)	CONTAINER/PACKAGING
Alfa Kleen / Alfa-Kleen AK-020 All Purpose Degreaser 714-524-2530	9.0-10.0	0%	<ul style="list-style-type: none"> • Recyclable HDPE • Refillable
American Resource / Natrasol 800-638-1209	7.5	2.5%	<ul style="list-style-type: none"> • Steel drum or pail with recycled content • Refillable
Church & Dwight / Arm & Hammer Baking Soda 800-524-1328	8.2	0%	<ul style="list-style-type: none"> • Boxes are 100% recycled paperboard with min. 35% postconsumer content
Earth Care Products, Inc. / ECP-89 General Purpose Bacterial Cleaner 800-689-2847	7.0	0%	<ul style="list-style-type: none"> • Recyclable HDPE • Contains 15-20% recycled materials • Recyclable, refillable
Gaylord Industries, Inc. / Formula G-510 800-547-9696	9.7	0%	<ul style="list-style-type: none"> • Recyclable HDPE • 30 & 55 gallon steel drums with 65% recycled content • Refillable • Recyclable cardboard boxes
J.E. Jones Supply / Orange Essence #2 606-273-0116	7.4	10% (concentrated)	<ul style="list-style-type: none"> • Recyclable HDPE • Recyclable cardboard boxes have preconsumer content
KC Products, Inc. / ECO 2000 800-927-9442	11.4	0%	<ul style="list-style-type: none"> • 40% postconsumer plastic • Recycled, recyclable, spray bottle is refillable
Lifestyles International / EnviroLife All Purpose Cleaner Concentrate 800-288-7570 604-878-1059	10.7-11.1	1%	<ul style="list-style-type: none"> • Recyclable HDPE with 18% preconsumer content • Recyclable cardboard boxes which contain recycled content
Lifetime Solutions, Ltd. / Universal Concentrate, Heavy Duty Degreaser & Multi-Purpose Cleaner 941-573-3233	9.2-11.2	0%	<ul style="list-style-type: none"> • Recyclable HDPE • Recyclable cardboard boxes
Mamco International, Corp. / Bio-T Max, Bio-T 200 A, & Bio-T 300 B, & Bio-T General Purpose 800-442-4686	7.0	6.7%	<ul style="list-style-type: none"> • Recyclable HDPE 1 gallon container, tin pails, or steel drums • 100% postconsumer recycled cardboard boxes • Reusable wooden pallets
National Chemical Laboratories, Inc. / Citrol 100% Active All Natural Citrus Degreaser/Deodorizer 800-NAT-CHEM (purchasing)	6.5-8.0	2%	<ul style="list-style-type: none"> • Recyclable HDPE • Refillable

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Recommended General Purpose Cleaners — Green Buys (continued)

MANUFACTURER / BRAND	pH	VOC concentration (by weight)	CONTAINER/PACKAGING
P&D Creative Co., Inc. / Magic 555 All Purpose Cleaner 301-797-3503	10.7-10.9 (concentrated)	0%	<ul style="list-style-type: none"> • Recyclable HDPE, LDPE*—refillable container • Recycled plastic
Proactive International / Multi-purpose Cleaner & Degreaser, Neutral Cleaner 888-802-5873	7.0	10%	<ul style="list-style-type: none"> • Recyclable HDPE with 25% postconsumer content • Cardboard containers have 25% postconsumer content & are recyclable
Rochester Midland Corp. / Cleanaire 1100, 1200, 1250 716-336-2200	12.0	0%	<ul style="list-style-type: none"> • Recyclable HDPE plastic drums & pails • Refillable
Ultra Shield Products International, Inc. / Ultra Shield Cleaner Concentrate & Ultra Clean All Purpose Cleaner 800-483-4083 or 800-484-4063	8.5-9.0 (concentrated)	1.4%	<ul style="list-style-type: none"> • Recyclable HDPE • Recyclable cardboard

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Recommended General Purpose Cleaners — Honorable Mentions

MANUFACTURER / BRAND	pH	VOC concentration (by weight)		CONTAINER / PACKAGING	COMMENTS
Arrowak Manufacturing and Distributors, Inc.) / Klean E-Z 803-754-5168	10.5	12.7%	(concentrated)	<ul style="list-style-type: none"> • Recyclable HDPE • Refillable • Recyclable cardboard boxes 	1,4
Blue Coral, Inc. / Clear Magic, Industrial Clear Magic 800-416-1600	7.0	5%	9.7%	<ul style="list-style-type: none"> • Recyclable HDPE for 5 gal and larger sizes • Recyclable cardboard boxes 	1,4,5
Colgate Palmolive / Ajax Expert No Rinse Hard Surface Cleaner 770-431-5700	7.0	1%		<ul style="list-style-type: none"> • Recyclable HDPE with 25% postconsumer content 	4,5
Dyna Chem, Inc. / H₂Orange₂ Super Concentrate Rtu Solutions 800-281-9604	6.5-8.0	0%		<ul style="list-style-type: none"> • Recyclable HDPE and paper • Recyclable paper • Recyclable cardboard box 	5
Earth Clean Systems, Inc. / Magnum Clean, Easy Clean, Degrease It & Grease Clean 888-53E-ARTH or 888-883-3562	7.0-10.0	0%		<ul style="list-style-type: none"> • Recyclable HDPE • Recyclable cardboard boxes 	3,4
Ipax Cleanogel, Inc. / Green Unikleen 313-933-4211	9.5	0%		<ul style="list-style-type: none"> • Plastic • Refillable • Recyclable corrugated boxes 	2
Maintex / Citra Clean 626-961-1988	8.0-9.0	6%		<ul style="list-style-type: none"> • Recyclable HDPE with 15% postconsumer content • Recyclable cardboard boxes 	4
PCI Of America / Hurrisafe 9010 All Purpose Cleaner 301-581-9700	10.0	0%		<ul style="list-style-type: none"> • Recycled HDPE • Refillable & reusable • Recyclable cardboard boxes which contain recycled content 	4

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Recommended General Purpose Cleaners — Honorable Mentions (continued)

MANUFACTURER / BRAND	pH	VOC concentration (by weight)	CONTAINER / PACKAGING	COMMENTS
Rite-Kem / Citrus-Klean 800-841-5351	7.5	1.7%	<ul style="list-style-type: none"> Recyclable HDPE Refillable totes 	1,4
Rochester Midland Corp. / Biogenic SE 373, 374 716-336-2200	7.0	4.8-9.5%	<ul style="list-style-type: none"> Steel Refillable, recyclable 	1
Rochester Midland Corp. / Dfe 401 800-RMC-4448	10.0 (concentrated)	0%	<ul style="list-style-type: none"> HDPE (typically contains 10% preconsumer recycled material) Totes returned & reused Drums can be reused Cardboard containers have recycled content & are recyclable 	1
Rochester Midland Corp. / Enviro Care All Purpose Cleaner 800-RMC-4448	7.5 (concentrated)	0%	<ul style="list-style-type: none"> HDPE (typically contains 10% preconsumer recycled material) Totes returned & reused Drums & pails may be reused Cardboard containers have recycled content & are recyclable 	1
Rochester Midland Corp. / Enviro Care Tough Job Cleaner 800-RMC-4448	9.0 (concentrated)	6%	<ul style="list-style-type: none"> HDPE (typically contains 10% preconsumer recycled material) Recyclable, refillable, Cardboard containers have recycled content & are recyclable 	1
Rochester Midland Corp. / Enviro Care Washroom & Fixture Cleaner 800-RMC-4448	4.0 (concentrated)	0%	<ul style="list-style-type: none"> HDPE (typically contains 10% preconsumer recycled material) Recyclable, refillable, Cardboard containers have recycled content & are recyclable 	1
Seventh Generation / Seventh Generation All Purpose Cleaner 800-456-1191	10.0-10.7	0%	<ul style="list-style-type: none"> HDPE with 50% postconsumer recycled material Cardboard containers have 50% postconsumer content & are recyclable 	6
Shadow Lake, Inc. / Citra-Solv® Concentrate & Citra-Solv® Spray Formula 800-343-6588	7.0-9.0	2% (diluted)	<ul style="list-style-type: none"> PET & HDPE Bottles are recyclable, spray formula is refillable 	5
Sunshine Makers, Inc. / Crystal Simple Green 800-228-0709	9.5	0%	<ul style="list-style-type: none"> HDPE for 1 gallon and larger sizes Cardboard containers have 25% postconsumer content and are recyclable 	4
Sunshine Makers, Inc. / Simple Green 800-228-0709	9.5	0.8%	<ul style="list-style-type: none"> HDPE for 1 gallon and larger sizes Cardboard containers have 25% postconsumer content and are recyclable 	4

NOTES:

- Product is not explicitly labeled as non-toxic to both humans and aquatic life.
- Product may contain phosphates or derivatives of phosphates.
- Product may contain phenolic compounds.
- Product may contain glycol ethers.
- Product may contain petroleum or petrochemical compounds (other than phenolic compounds and/or glycol ethers).
- Product is not sold as a concentrate.



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WHO IS GREEN SEAL?

Green Seal's mission is to achieve significant environmental benefits by encouraging organizations and individuals to choose environmentally responsible products and services. We accomplish this goal in two key ways.

First, we set rigorous environmental standards for products and services and award a seal of approval to those meeting the standards. When consumers select products bearing the Green Seal, they know they are buying products that have a lessened impact on

the environment, without sacrificing performance.

*Second, through our Green Seal Environmental Partners Program and the **Choose Green Reports**, we help large and small institutions become environmentally sensitive shoppers. We provide detailed guidance — such as this report — on how organizations can protect the environment while saving money. Please*

contact us to find out how you can become a partner and receive our monthly newsletters.

